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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/755,152

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EXAMINER

PELLEGRINO, BRIAN E

ART UNIT

PAPER NUMBER

3738

MAIL DATE

DELIVERY MODE

03/02/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/755,152	Applicant(s) POPE ET AL.	
	Examiner Brian E. Pellegrino	Art Unit 3738	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-25,27-41,43-51 and 70-94 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-25,27-41,43-51 and 70-94 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/18/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24,51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 recites the limitation "substrate metal" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. Claim 20 never recites that the substrate is metal, of which claim 24 depends.

Claim 51 recites the limitation "substrate surface topographical features" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Double Patenting

Applicant is advised that should claim 38 be found allowable, claim 88 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

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unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 35,86 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 82 of U.S. Patent No. 6290726.

Although the conflicting claims are not identical, they are not patentably distinct from each other because this application’s claims are merely broader than the patented claim 82 of ‘726. See *In re Goodman*.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 20,21,23,25,27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope et al. (5645601) in view of Griffin (GB 2283772). Fig. 2 shows a joint implant with a generally spherical substrate **108** having a load bearing surface and articulation surface **146** with diamond layer **150** sintered onto the substrate, col. 3, lines 29-31. It can also be seen there is a receptacle **130** with a load bearing and

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articulating surface **136** having a diamond table **158** also sintered thereon. Pope also discloses the load bearing and articulation surfaces are burnished, col. 3, lines 35-37. However, Pope does not that there are substrate surface topographical features with different depths. Griffin teaches (Figs. 5-7) a substrate and a superhard material that are bonded together with topographical features that are of different depths. Griffin also teaches that the different depths of the topographical features enable the two materials to be better secured about the periphery, page 10, lines 12-14. It would have been obvious to one of ordinary skill in the art to utilize different surface irregularities as taught by Griffin in bonding the diamond to the substrate for the prosthetic device of Pope et al. such that it inhibits the propagation of cracks, see abstract of Griffin. Regarding claims 27-30, although not explicit Griffin does teach (page 4, lines 17,18) varying the depths of the topographical features and it would have been obvious to one of ordinary skill to place one protuberance or rib within another such that a depression would be within another and thus creates a good mechanical interlock as seen in Fig. 6. The periphery shape of the depressions can be round or polygonal as Griffin teaches any shape, page 8, lines 19-22. Regarding claims 31,32 Pope discloses the substrate can be CoCr and thus can be a "solvent-catalyst metal" and that other metals such as titanium or steel could be used, col. 3, lines 6,7. With respect to claim 33, the examiner asserts that the claimed physical properties (coefficients of thermal expansion and moduli) are present in the prior art material to some extent even though they are not explicitly recited. Therefore, the examiner hereby burdens the applicant to show that these properties are not present in the prior art and that they are equal.

Claims 35-37,47,48,86,87,92,93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope et al. (5645601) in view of Hall (4729440). Pope is explained above. It can be seen that extending *generally* from the periphery of the diamond compact is a neck **112**. However, Pope et al. although not explicitly stated (chemical bonds result from sintering) the substrate and diamond table have chemical bonds between the substrate and diamond table. Hall teaches that sintering a polycrystalline diamond table to a substrate yields chemical bonds, col. 5, lines 42-48. It should also be noted that upon forming chemical bonds an interface exists. It would have been obvious to one of ordinary skill in the art to use the teaching of Hall that a PCD is chemically bonded to the substrate such that the bearing component of Pope is permanently affixed together and will not have particles release or separate from each other. Regarding claim 36, it can be seen the diamond table only covers a portion of the substrate's exterior surface. With respect to claim 37, since the diamond layer is covering the substrate spherical surface, the radius would be slightly greater.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pope et al. '601 in view of Griffin (GB 2283772) as applied to claim 20 above, and further in view of Hall '440. Pope et al. as modified by Griffin is explained above. However, Pope in view of Griffin fail to explicitly disclose that the bonded materials are chemically bonded. Hall is explained supra. It would have been obvious to one of ordinary skill in the art to have the substrate and diamond material chemically bonded as taught in Hall with the prosthesis of Pope as modified by Griffin such that it assures the materials do not separate in the patient under wear and to prevent particle debris from occurring.

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Claims 24,70-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope et al. '601 in view of Griffin (GB 2283772) as applied to claim 20 above (for claim 24), and further in view of Hall (4604106). Pope et al. as modified by Griffin is explained above. However, Pope in view of Griffin fail to explicitly disclose that the bonded materials result in a zone with a gradient in which both metal and diamond are found. Hall teaches (Figs. 3,4) that gradient or transition zones are present in compacts made by high pressure resulting in metal mixed the diamond in a layer, col. 3, lines 64-68. Hall also teaches that catalyst metal is used to better bond diamond to a substrate and are in interstitial spaces of the diamond layer, col. 7, lines 49-55,61-68. Additionally, important is the catalyst metal because when the substrate is steel it causes a chemical reaction with the diamond, and thus the catalyst forms a zone to separate the diamond from the steel, col. 9, lines 35-46. It would have been obvious to one of ordinary skill in the art to have the substrate and diamond material have a gradient transition zone with a catalyst metal as taught in Hall with the prosthesis of Pope as modified by Griffin such that it assures the materials do not separate in the patient under wear and that a proper bond is formed between two different materials. Regarding claims 71-73, Griffin teaches projections or "lips" or dovetailed interlocking members, page 9, lines 4-10. Regarding claim 74, since the diamond is bonded with the substrate there are *some* sp^3 carbon bonds. Hall does teach cobalt can be used as a solvent catalyst material and Pope discloses CoCr is a suitable material for the prosthesis, thus it would have been obvious to one of ordinary skill in the art to use CoCr as the solvent catalyst metal. With respect to claims 75,83-85, Griffin is explained above regarding surface topographical features.

Claims 38-41,43-46,49-51,88-91,94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pope et al. '601 in view of Hall '440 as applied to claims 35,37,47 above, and further in view of Griffin (GB 2283772). Pope et al. as modified by Hall is explained above. However, Pope in view of Hall fail to disclose surface topographical features. Griffin teaches the use of surface topographical features such that reduce cracking, abstract. Griffin also teaches that the use of topographical features or protrusions increases the bond between a substrate and diamond table, page 7, lines 12,13. With respect to claims 89,90 Griffin illustrates (Figs. 5-7) that the surface features are irregular or have different depths such that it alters the stresses and thus has a varying connection plane that in essence reduces cracking, page 8, lines 1-7. Regarding claim 91, although not explicit Griffin does teach (page 4, lines 17,18) varying the depths of the topographical features and it would have been obvious to one of ordinary skill to place one protuberance or rib within another such that a depression would be within another and thus creates a good mechanical interlock as seen in Fig. 6. Regarding claim 94, Griffin teaches the projections can be radiused, page 8, lines 19-22.

Response to Arguments

Applicant's arguments with respect to claim 70 have been considered but are moot in view of the new ground(s) of rejection. The following Office Action contains rejections to previously allowed and/or previously objected-to-as-allowable material as indicated in Office Action mailed 10/11/06. Prior art cited in the IDS of 6/18/08 was relevant to the allowed and objected to claims.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the *fee* set forth in 37 CFR 1.17(p) on 6/18/08 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Pellegrino whose telephone number is 571-272-4756. The examiner can normally be reached on M- F (7am-5:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Corrine McDermott can be reached on 571-272-4754. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC 3700
/Brian E Pellegrino/
Primary Examiner, Art Unit 3738